Excerpts translations of JP57-106624

Title of the invention

Anti-Viral Agent

Claims

1. An anti-viral agent which comprises polysaccharides and water-soluble lignin, as active ingredients, obtained from Gramineus plants.

2. The anti-viral agent according to claim 1, characterized in that said Gramineus plant is bagasse.

(omitted.)

Example 1

Water was added in an amount of 5 liters per kg of bagasse, to which crude enzyme mentioned below was added in a concentration of 0.1 to 0.5 % and the pH was adjusted to a range of from 4.2 to 6.2. Then, the temperature was set to a range of from 35 to 45 C to allow the enzyme reaction to proceed in the range of said temperature for 8 to 24 hours, whereby polysaccharides and water-soluble lignin in bagasse were extracted in water. The mixture was then filtered through a filter cloth to remove residuals and further filtered through a filter to remove minute residuals.

Subsequently, this aqueous solution was deproteinized by 10 % TCA (trichloroacetic acid) or the like, and a large excess of 95 % ethanol was added. The resulting precipitate was separated by centrifugation and was then dried by freeze-drying or the like to obtain an anti-viral agent of this invention.

The aforesaid crude enzyme was obtained as follows.

That is, Basidiomycetes of , for instance, a shiitake mushroom were cultured in a liquid medium and a filtrate of the culture was subjected to salting-out by ammonium sulfate or the like, dialyzed, and freeze-dried. The crude enzyme contains cellulase, lignase, glucanase, chitinase and the like.

Further, the agent obtained above was subjected to isolation

and identification steps as follows.

That is, the freeze-dried powder obtained above was dissolved in a small amount of water, and subjected to Sephadex G-25 column chromatography. 35 % ethanol was used as a solvent.

The results are as shown in Fig. 1. Anti-viral activity was observed only in fraction A according to a bio-assay.

Then, Fraction A was dissolved in a small amount of water, and subjected to DEAE cellulose column chromatography. Elution was performed in a step wise method with a pH 9.5 carbonate buffer and NaCl. The results are as shown in Fig. 2. The anti-viral activity was observed only in fractions 1 and 3 according to the bio-assay.

Then, it was confirmed by experiments that the substance of fraction 1 obtained above was polysaccharides with a molecular weight of 10,000 to 50,000 which showed no characteristic ultraviolet ray absorption, but a positive molisch reaction, a positive phenol-sulfuric acid reaction, and a negative ninhydrin reaction.

Further, it was confirmed by experiments that the substance of fraction 2 (this should have been fraction 3: comment in translation) was water-soluble polyphenol (water-soluble lignin) with a molecular weight of 50,000 to 100,000 which showed a positive phenol-sulfuric acid reaction, and a positive MAULE reaction.

The results above confirm that the active ingredients in the agent of this invention are polysaccharides and water-soluble lignin.

(Experiments 1, 2 and 3 omitted.)

Example 2

Water was added in an amount of 5 liters per kg of bagasse and heated to boil at 100 C for 3 to 10 hrs., whereby polysaccharides and water-soluble lignin in the bagasse were extracted in water. The mixture was then filtered through a filter cloth and the filtrate was subjected to centrifugation

to remove residuals and obtain an extract liquid.

Then, this extract liquid was subjected to isolation and identification steps as described above. It was confirmed that polysaccharides and water-soluble lignin were contained in the extract liquid.

Further, the extract liquid obtained above was used in anti-viral experiment as in Example 1. An excellent anti-virus effect was confirmed.

(Example 3 omitted.)

Fig. 1

Fig. 1 illustrates fractions by Sephadex G-25 chromatography of the extract liquid.

Fig.2

Fig. 2 illustrates fractions by DEAE cellulose column chromatography of fraction A of Figure 1.

Translations of JP57-106624

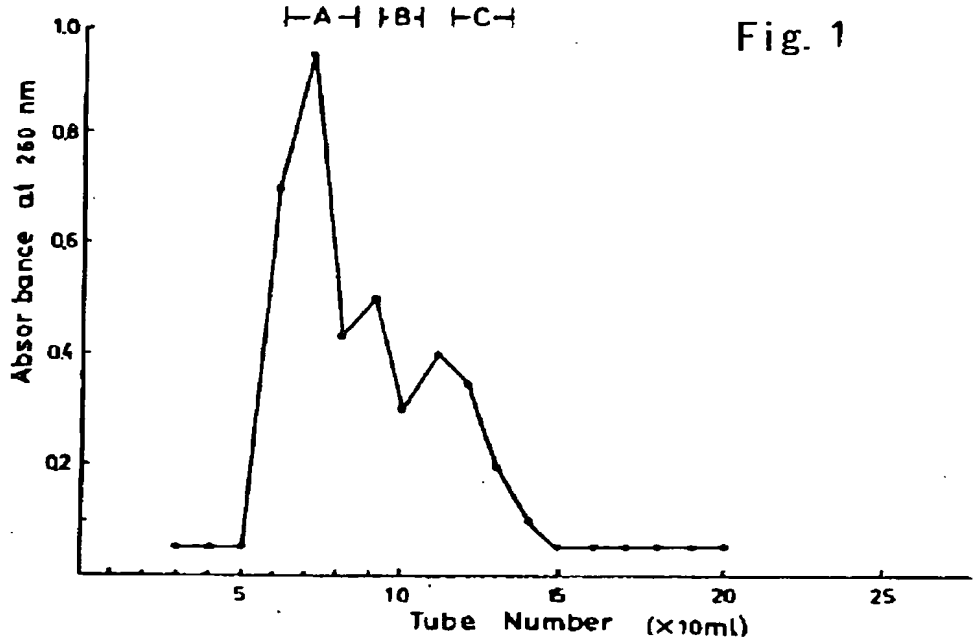

Fig. 1

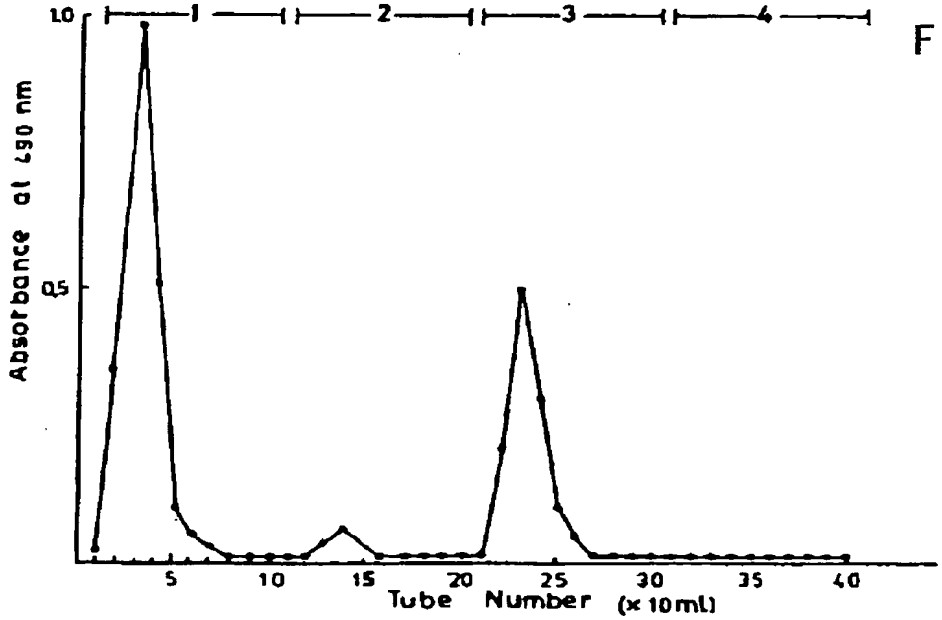

Fig. 2